Cloned DNA Polymerases from *Thermotoga maritima* and Mutants Thereof

Abstract

The invention relates to a substantially pure thermostable DNA polymerase from *Thermotoga* (*Tne* and *Tma*) and mutants thereof. The *Tne* DNA polymerase has a molecular weight of about 100 kilodaltons and is more thermostable than *Taq* DNA polymerase. The mutant DNA polymerase has at least one mutation selected from the group consisting of (1) a first mutation that substantially reduces or eliminates 3′→5′ exonuclease activity of said DNA polymerase; (2) a second mutation that substantially reduces or eliminates 5′→3′ exonuclease activity of said DNA polymerase; (3) a third mutation in the O helix of said DNA polymerase resulting in said DNA polymerase becoming non-discriminating against dideoxynucleotides. The present invention also relates to the cloning and expression of the wild type or mutant DNA polymerases in *E. coli*, to DNA molecules containing the cloned gene, and to host cells which express said genes. The DNA polymerases of the invention may be used in well-known DNA sequencing and amplification reactions.